Quiz 3 — *take home due WEDNESDAY Feb. 20th* ***IN CLASS*** — Chem 132
Dr. Fantini — no books, notes, or help; complete in one sitting — February 18, 2013

Name: _____ SB#: _____

*** Use a calculator; letting calculator solve for "*x*" is OK, but check your results. ***

1. For the reaction shown below, the equilibrium constant in terms of ***pressures*** measured in atmospheres (atm) is $K_P = 0.754$ at 700 K. The initial pressures in a vessel at 700 K are $P_{(CCl_4)} = 0.95$ atm and $P_{(Cl_2)} = 0.55$ atm. What are the pressures of these species at equilibrium?

$$CCl_4(g) \rightleftharpoons C(s) + 2\ Cl_2(g)$$

(over)

2. Which way does the reaction shown, initially at equilibrium, shift to reestablish equilibrium when the stated change in conditions is made. Choose "toward reactants" or "toward products" if there is a shift. If the change in conditions does not disturb the equilibrium, choose "no change." ***Circle your answer in each case.*** This reaction is known to be an ***exothermic*** reaction.

$$\underset{\textit{ammonia}}{2\ NH_3(g)} + CO_2(g) \rightleftharpoons \underset{\textit{urea}}{CO(NH_2)_2(s)} + H_2O(g)$$

change in conditions			
add a catalyst	*toward reactants*	*no change*	*toward products*
increase the pressure	*toward reactants*	*no change*	*toward products*
remove some of the urea	*toward reactants*	*no change*	*toward products*
remove some of the H_2O	*toward reactants*	*no change*	*toward products*
add some helium gas	*toward reactants*	*no change*	*toward products*
raise the temperature	*toward reactants*	*no change*	*toward products*
lower the temperature	*toward reactants*	*no change*	*toward products*
increase the volume	*toward reactants*	*no change*	*toward products*